

**RE: Latest calcs**

Hilbert, Timothy (hilbertj) to: Benson.Bob, Brattin, Bill

09/05/2012 01:24 PM

From: "Hilbert, Timothy (hilbertj)" <HILBERTJ@UCMAIL.UC.EDU>  
To:  
Cc: Berry.David@epamail.epa.gov

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We carefully combed through all samples and removed duplicates.  
In addition to date, time was often available to help evaluate if the samples were duplicates. When in doubt, we assumed they were duplicates and they were removed.

Tim

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**From:** Bob Benson [mailto:Benson.Bob@epamail.epa.gov]  
**Sent:** Wednesday, September 05, 2012 3:02 PM  
**To:** Brattin, Bill  
**Cc:** David Berry; Hilbert, Timothy (hilbertj); Levin, Linda (levinls)  
**Subject:** Re: Latest calcs

I was looking through the raw data (Department\_Raw\_Data tab) and noted that there were often multiple samples taken on the same day within a department. I am not sure these multiple samples taken on the same day should be treated as independent samples. Do we have a rationale to support a decision that each sample should be treated as an independent sample as opposed to a duplicate?

The JEM summary has entries for Central Maintenance after this activity was contracted after 1983. Perhaps the values for 1983 and after should be removed.

▼ "Brattin, Bill" ---09/04/2012 07:39:18 PM---Tim and Linda Here is a file that does the IH fitting and generates a JEM based on arithmetic mean m

From: "Brattin, Bill" <[brattin@srcinc.com](mailto:brattin@srcinc.com)>  
To: Tim Hilbert <[HILBERTJ@UCMAIL.UC.EDU](mailto:HILBERTJ@UCMAIL.UC.EDU)>, "Levin, Linda (levinls)" <[levinls@UCMAIL.UC.EDU](mailto:levinls@UCMAIL.UC.EDU)>,  
Cc: Bob Benson/R8/USEPA/US@EPA, David Berry/R8/USEPA/US@EPA  
Date: 09/04/2012 07:39 PM  
Subject: Latest calcs

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Tim and Linda

Here is a file that does the IH fitting and generates a JEM based on arithmetic mean modeled values.

Please review and check as needed.

Points to note:

- 1) The basic model is  $C(t) = a \cdot \exp(-b \cdot t)$  where  $t = (\text{DOS} - 1/1/1970)/365.25$ . Note the meaning of  $t$  is the same for all jobs.
- 2) NDs are assigned values of zero
- 3) Missing dates are assigned values in the middle of the possible range (highlighted in tan in my file)
- 4) Background is fit as a stand-alone data set, with one high value excluded
- 5) Indoor trioning jobs are fit simultaneously, with a common  $b$
- 6) Outdoor trioning jobs (track other and track unload) are fit simultaneously, with a common  $b$  (but not the same as for indoor jobs)
- 7) Extrapolation from 1972 to earlier dates is done the same as earlier
- 8) Values past 1984 are assumed to be constant at the 1984 value

I have found that when I use Solver in Excel the  $a$  terms tend to be a little unstable for the lowest concentration departments.  
I assume SAS can find a fit that is truly optimal.

I will be out tomorrow AM, but back by noon my time.  
Send e-mail if you have questions.

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[attachment "winmail.dat" deleted by Bob Benson/R8/USEPA/US] [attachment "Final JEM Based on Unweighted AM fits.xlsx" deleted by Bob Benson/R8/USEPA/US]